

Treatment of pediatric fever

Are acetaminophen and ibuprofen equivalent?

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Clinical question

Is acetaminophen or ibuprofen superior for the treatment of pediatric fever?

Evidence

A meta-analysis and recent randomized controlled trial provide some guidance.

- Meta-analysis of 10 trials (N=1078) of ibuprofen (5 to 10 mg/kg) versus acetaminophen (10 to 15 mg/kg)¹:
-ibuprofen was superior at 2, 4, and 6 hours; and
-at 4 to 6 hours, approximately 15% more ibuprofen patients had fever reduction (number needed to treat=7).
- PITCH randomized controlled trial (N=156, aged 6 months to 6 years) comparing ibuprofen (10 mg/kg every 6 to 8 hours), acetaminophen (15 mg/kg every 4 to 6 hours), or a combination of both²:
-For time without fever in the first 4 hours, the combination was superior to acetaminophen by 55.3 minutes ($P<.001$) but was not superior to ibuprofen.
-Ibuprofen and the combination cleared fever faster.
-The combination reduced fever time in the first 24 hours (acetaminophen 4.4 hours more [$P<.001$], ibuprofen 2.5 hours more [$P=.008$]).
-Overdose was reported in 33 children (21%).
-The authors recommended ibuprofen:
—ibuprofen was superior to acetaminophen;
—the combination was only slightly better on a few outcomes than ibuprofen alone; and
—there was a possible risk of excess dosing with the combination.

Context

Some debate surrounds the use of antipyretics:

- There is no evidence that fever itself is harmful (theorized that it might be part of the immune response).³
 - Antipyretics do not seem to prevent febrile seizures.⁴
 - There is no evidence that treating fever in mild infections is harmful (unless overdosed).
 - If fever is treated, the goal should likely be comfort⁵ (although no studies have investigated comfort in fever).
- Adverse effects of ibuprofen compared with acetaminophen:
- asthma—no increased risk or perhaps slightly lower⁶ (possible slight increase with acetaminophen²);
 - Reye syndrome—no increased risk^{7,8};
 - gastrointestinal and renal effects—no evidence of risk,⁹ but the Canadian Paediatric Society advises against ibuprofen if a child is not “drinking reasonably well”⁵; and
 - systemic reaction—no evidence of risk.⁷

Bottom line

The appropriateness of treating pediatric fever is controversial and should be discussed with parents. If clinicians are going to recommend a treatment, they should know that ibuprofen offers superior fever reduction with no increase in adverse events.

Implementation

Providing pamphlets about fever management can reduce parental anxiety and decrease emergency visits.¹⁰ Although the evidence for patient information leaflets is generally poor,¹¹ pamphlets about pediatric infections seem to work if they are reviewed during the clinical encounter.¹² Therefore, reviewing the Canadian Paediatric Society handout⁵ with parents to explain fever management might be helpful, but the pamphlet could be altered to encourage ibuprofen use with appropriate dosing regimens.

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The opinions expressed in this Tools for Practice article are those of the authors and do not necessarily mirror the perspective and policy of the Alberta College of Family Physicians.

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